UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,121	10/24/2003	Lelia Cosimbescu	86999AEK	1622

7590 08/10/2004

Paul A. Leipold
Patent Legal Staff
Eastman Kodak Company
343 State Street
Rochester, NY 14650-2201

EXAMINER	
GARRETT, DAWN L	

ART UNIT	PAPER NUMBER
1774	

DATE MAILED: 08/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/693,121	COSIMBESCU ET AL.	
	Examiner	Art Unit	
	Dawn Garrett	1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/24/03;4/12/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 14 does not appear to set forth any limitations different from the limitation of claim 8 reciting an unsubstituted biphenyl group. Clarification and/or correction are requested.

2. Claims 6 and 15 are objected to because of the following informalities: It is suggested that "and" preceeding "alkyl" be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 16 is unclear because it recites "wherein there is also present in the light emitting layer a light emitting compound". Since claim 1 already sets forth "a light emitting dopant", it is unclear if the "light emitting compound" of claim 16 is either the host or dopant of the light emitting layer set forth in claim 1 or if a <u>further</u> light emitting compound is intended to be claimed. Clarification and/or correction are required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 4, 5, 8, 10, 12-14, 16, 18, 20, 22, and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukuoka et al. (US 6,713,192). Fukuoka et al. discloses organic electroluminescence devices comprising a mixed organic light emitting medium comprising at least (A) one electron transporting material and (B) an anthracene derivative (see abstract). The mixed region reads upon the instant "light emitting layer containing a light emitting dopant and a host". The amount of component (A) to component (B) is 1:9 to 9:1 (see col. 38, lines 10-14). Specifically shown anthracene derivative EM4 (see col. 11) reads upon the instant compound. A biphenyl group is attached to the anthracene at the 10 position. An further anthracene group with a phenyl group attached is on the main anthracene group at the 9 position. The further anthracene group on the main anthracene group reads upon a naphthyl group that is further substituted per instant claims 4 and 5. Specifically shown anthracene compound EM3 has a 3-biphenyl per instant claim 12 (see col. 11). Compound EM4 has a 4-biphenyl per instant claim 13 (see col. 11). The mixed light emitting region further comprises a fluorescent compound per instant claim 16 (see col. 38, lines 14-19). Preferred fluorescent compounds include quinacridones and coumarins, which are well known as green emitting compounds (see col. 37, lines 23-64). Per instant claim 20, component (A) may be deemed a co-host and fluorescent

compound (C) may be deemed the dopant, since the amount of (A):(B) may be 50/50 (see col. 38, lines 10-14). The preferred electron transporting component is Alq per instant claims 22 and 23 (see Example 14, Table 1-1, col. 47).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 6, 9, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (US 6,713,192). Fukuoka et al. is relied upon as set forth above. Fukuoka et al. fails to specifically show or to exemplify a compound with a naphthyl group substituted with at least one substituent selected from fluorine, hydroxy, cyano, alkyl, alkoxy, aryloxy, aryl, carboxy, trimethylsilyl and heterocyclic oxy groups; however, in general formula (I-a) in col. 3, Fukuoka et al. teaches that the second anthracene group, which reads upon the instant naphthyl group, may be substituted at R5 and/or R6 with an alkyl group, aryl group, alkoxy group, aryloxy group, or heterocyclic group (see col. 3, lines 16-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected one of these substituent groups, because Fukuoka et al. clearly teaches they may be included when forming compounds according to formula (I-a). Similarly, Fukuoka et al. fails to specifically show or to exemplify a compound with a biphenyl group substituted with at least one substituent selected from fluorine, hydroxy, cyano, alkyl, alkoxy, aryloxy, aryl, carboxy, trimethylsilyl and heterocyclic oxy groups; however, in general formula (I-a) in col. 3, Fukuoka et al. teaches that the phenyl group, which

reads upon the instant biphenyl group, may be substituted at R1 (or R2) with an alkyl group, aryl group, alkoxy group, aryloxy group, or heterocyclic group (see col. 3, lines 16-20). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected one of these substituent groups, because Fukuoka et al. clearly teaches they may be included when forming compounds according to formula (I-a). Per instant claim 9, Fukuoka et al. does not exemplify a compound with a fused ring on a biphenyl group, but does clearly teach that R1-R6 may form a ring by forming a bond between each other (see col. 3, lines 22-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a fused ring on the phenyl group of general formula (I-a), because Fukuoka et al. clearly teaches a fused ring may be formed from substituent groups. Per instant claim 11, Fukuoka et al. clearly teaches a compounds with a biphenyl group by specifically showing compounds EM3 and EM4. These compounds clearly show 3 biphenyl and 4-biphenyl; however Fukuoka et al. does not exemplify a 2-biphenyl. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a 2-biphenyl, because Fukuoka et al. teaches for general formula (I-a) that the R1 and R2 substituents may form at any carbon position on the phenyl ring.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuoka et al. (US 6,713,192) in view of Araki (US 6,413,658). Fukuoka et al. is relied upon as set forth above for the rejection of claims 1 and 20. Fukuoka et al. teaches a light emitting device comprising an anthracene compound and an electron transporting compound in mixture as a light emitting layer (see abstract). Fukuoka et al. teaches the electron transporting compound is not particularly limited as long as the compound has the electron transporting property (see col. 5, lines 52-54). While Fukuoka et al. sets forth some specific electron transporting materials, Fukuoka et al. fails

to teach an electron transporting material (co-host) which is a polymer. Araki teaches in analogous art electron transporting materials that are polymers (see formula 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected an electron transporting polymer taught by Araki for the electron transporting material disposed in the Fukuoka light emitting layer, because Fukuoka teaches that any material may be used as the electron transporting material as long as the material has an electron transporting property.

11. Claims 1-17, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi et al. (WO 2003/087023) (hereinafter WO '023). WO '023 teaches anthracene compounds that are asymmetric for use in an organic electroluminescent element. The anthracene compound may be used in a light emitting layer in mixture with another compound (see abstract). The anthracene compound is of the formula "A-Ar-B" (see page 3) wherein A is selected from the groups labeled (1) to (11) shown on page 4. A naphthyl group is shown as number (4). On the other side of the anthracene skeleton, B may be selected from a 5-60 carbon aryl group, which encompasses a biphenyl group (see English abstract by Derwent for reference). The teaching to use the anthracene compound in combination with another compound in mixture in a layer reads upon the requirement of a dopant and a host per instant claim 1. The naphthyl group shown as number (4) for the "A" group comprises two fused rings per instant claim 2 and is unsubstituted per instant claim 3. Per instant claims 4 and 5 requiring a naphthyl group with a further fused ring, number (7) for "A" reads upon the limitation. Per instant claim 6, the naphthyl group may be further substituted as shown in the group numbered (6) for "A" (see page 6). Per instant claim 7, naphthyl group (4) for "A" is drawn such that the naphthyl group may attach to the anthracene skeleton at any carbon position of the first ring of

the naphthyl group (see page 6). Per instant claims 8, 10, and 14, WO '023 teaches the "B" group may be an unsubstituted bi-phenyl group (see compound A21, p. 33). Per instant claim 9, WO '023 teaches the "B" group may be a biphenyl group with a further attached fused ring (see compound A18, p. 32). Per instant claims 11-13, it would have been to one of ordinary skill in the art at the time of the invention to have formed any one of biphenyl groups attached at the 2, 3, or 4 position, because WO '023 generally teaches aryl groups of 5-60 carbons for the "B" group of general formula A-Ar-B and any of the bi-phenyls recited in claims 11-13 fall within this category. Per instant claim 15, the reference teaches the "B" group may be a biphenyl group substituted with a phenyl group (see compound A14, page 32). WO '023 teaches a light emitting compound and teaches the element emits blue light per instant claims 16 and 17. Per instant claims 24 and 25, the electroluminescence element is taught as a light source for electronic instruments (see title). Although WO '023 fails to *exemplify* a compound with an "A" group comprising naphthyl group and a "B" group comprising specifically a bi-phenyl group, it would have been obvious to one of ordinary skill in the art to have formed compounds according to these claims, because WO '023 generally teaches "A" and "B" groups for bonding to an anthracene skeleton that read upon the instant compounds.

12. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funahashi et al. (WO 2003/087023) in view of Wolk et al. (US 2002/0160296). Funahashi et al. is relied upon as set forth above for the teaching of a blue light emitting device comprising an anthracene derivative. Funahashi et al. fail to teach an element with white light emission for an electronic display. Wolk et al. teach in analogous art patterning red, blue and green light emitting layers in an element to achieve the emission of white light (see par. 35). It would have been obvious to

one of ordinary skill in the art at the time of the invention to have formed a light emitting element emitting white light by using the blue emitting layer of Funahashi et al. as the blue emitting part and further adding other colored light emitting layers, because Wolk et al. teaches the combination of light emitting layers, including a blue layer, produces white light if desired.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-9, 11-15, 19-22, 24, and 25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 4-11, 13-17, and 19-23 of copending Application No. 10/780,436. Although the conflicting claims are not identical, they are not patentably distinct from each other because although the present application does not set forth a white light-emitting OLED device with multiple colored light emitting layers in the preamble of the present application, instant claim 19 sets forth a device including in one or more light emitting layers compounds sufficient to emit white light. This limitation is considered the same as the white light emitting limitation of the co-pending application. The two applications claim identical anthracene derivatives.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hatwar 2004/0058193 discloses at par. 143 that coumarin and quinacridone compounds emit green light. JP 2003-306454 is cited as a patent family equivalent of WO 2003/087023.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is 571-272-1523. The examiner can normally be reached Monday through Friday during normal business hours. Please allow the examiner twenty-four hours to return your call.

If reasonable attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached at 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DAWN GARRETT
EXAMINER
ART UNIT 1774

D.G.
August 1, 2004